

REMARKS

Status of Application

This amendment accompanies a Request for Continuing Examination (RCE) and is responsive to the Final Office Action mailed on March 24, 2005. Applicants submitted a Notice of Appeal with a three-month extension of time via Express Mail on September 21, 2005, which was stamped as received by the USPTO on September 21, 2005. Applicants wish to reopen prosecution of the instant application, and this amendment accompanies the RCE, the RCE fee under 37 C.F.R. 1.17(e), and a petition for a one-month extension of time.

Amendment of Title

The title has been amended to more accurately reflect the claimed invention.

Rejections in Final Office Action

Claims 1-6 in this application stand finally rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Ishida et al. (U.S. Patent No. 4,455,281, referred to as "Ishida" herein) in view of EP 0831211. Claims 1-3 and 5-6 have been amended, and claim 4 has been cancelled. New claims 30-36 have been amended. Support for the amendment to the claims and the new claims can be found at least in the originally filed claims in the application. No new matter has been added.

Claim 1

Amended Claim 1 of the present application specifies a refractory metal carrier comprising a tube of corrugated construction, the carrier having coated thereon an intermetallic anchor layer capable of retaining a catalytic coating applied thereto intact on the carrier when the carrier is bent, the carrier being adapted for use in a conformable catalyst member. Claim 1 incorporates the limitations of claim 4, namely that the carrier is comprises a tube of corrugated construction, and claim 1 has been amended to recite that the carrier is adapted for use in a conformable carrier member.

The Examiner states at page 1 of the Final Office Action that "Ishida et al. discloses a plate-shaped catalyst unit for NO_x reduction of exhaust gas." The Examiner further states at page 2 of the Final Office Action that "As shown in Figures 5-21, the substrate can be bend [sic, bent] to form different shape as required in the instant claim 1." Continuing, the Examiner states that "[t]he 'thin' metal plates as disclosed in Ishida '281 would be considered 'pliable' as required in the instant claim 1".

Ishida, however, specifically states that the thickness of the metal plate "is preferably thin, but **toughness of the metal plate is required in order not to easily yield to deformation.**" (col. 4, lines 51-53 (emphasis added).) Regarding the Examiner's reliance on Figures 5-21 of Ishida for the proposition that substrate can be bent, it is Applicants' position that Figures 5-21

do not show or suggest a carrier that is bent or capable of being bent. The carrier plates shown in Figures 3 and 4 are corrugated, but Figures 3 and 4 do not disclose or suggest carriers that can be bent and retain the anchor layer on the carrier when the carrier is bent. Figures 3, 22, and 23 each show a plurality of plate-shaped carriers in a straight (not bent) stacked configuration, and there is no teaching or suggestion in Ishida to bend the plates. A person of ordinary skill in the art reviewing the specification and Figures 3, 22, and 23 of Ishida would be motivated to provide rigid plates that can be arranged in a stacked array. As discussed above, Ishida teaches that the plates should be sufficiently thick and tough so that the plates do not easily yield to deformation.

It is Applicants' opinion that disclosure of Ishida, including the passage and the Figures discussed above, teach away from Applicants' claim 1, which requires a corrugated tubular metal carrier that includes an anchor layer capable of retaining a catalytic coating applied thereto intact on the carrier when the carrier is bent. Claim 1 specifically recites that the carrier is adapted for use with a conformable catalyst member. Figures 3 and 3A provide an example of a conformable catalyst member, which is capable of being bent or curved to conform to bends or curves in an exhaust pipe. Ishida teaches away from such a metal carrier because Ishida requires the plate-shaped carrier to be resistant to deformation, and thus the carrier in Ishida could not be used in a conformable catalyst member. In this regard, Applicants

point out that MPEP § 2141.02 requires that "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." The Examiner's position that the disclosure of "thin" plates in Ishida teaches or suggests carriers that can be used in conformable catalyst members ignores the clear disclosure in Ishida that the plates should be rigid and not deformable.

Applicants respectfully submit that the Examiner has failed to meet the burden of showing that Ishida teaches or suggests a carrier that includes an intermetallic anchor layer capable of retaining a catalytic coating applied thereto intact on the carrier when the carrier is bent and that is adapted for use in a conformable catalyst member. As such, Ishida alone cannot provide the basis for a *prima facie* case of obviousness.

EP 0831211 does not cure the deficiencies noted above in Ishida. First, EP 0831211 does not disclose or suggest a carrier having an intermetallic anchor layer for retaining a catalytic material. Instead, EP 0831211 teaches a carrier made from thin, porous steel sheets having a layer of catalytic material such as platinum or rhodium directly formed on the steel sheet in the shape of a cylinder surrounded by a corrugated, support member that does not include a coating. (column 6, lines 14-24; col. 5.)

The Examiner has failed to explain why one skilled in the art would look to the teachings of EP 0831211, which

does not include an intermediate layer, in the first place. According to the MPEP, § 2142:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Here, the Examiner has failed to provide any motivation for combining the teachings of Ishida, which requires substrate having an intermediate layer to retain the catalyst on a non-deformable plate-shaped substrate, with EP 0831211, which teaches a cylindrical substrate that does not include an intermediate layer.

In the Final Office Action, the Examiner relies on EP 0831211 for the teaching "that catalytic bearing member is desired to have tubular, corrugated shape (note item 22 in Figure 7)." The Examiner concludes that "[i]t would have been obvious to one of ordinary skill in the art to shape the catalyst unit in Nishida [sic, Ishida] to any known,

conventional shape, such as tubular, corrugated shape, as suggested by EP '211."

Applicants note that in EP 0831211, the corrugated sheet, item 24 in Figure 7, serves as a cushion for catalytic bearing member 22, which is in the form of cylinder. There is no teaching or suggestion in EP 0831211 of a carrier that includes an intermetallic anchor layer capable of retaining a catalytic coating applied thereto intact on the carrier when the carrier is bent and adapted for use in a conformable catalyst member. While item 24 in Figure 7 is a corrugated sheet, it does not have a catalytic layer or an intermetallic layer formed thereon and thus cannot be considered to be a carrier having an intermetallic layer thereon. The catalytic bearing members disclosed in EP 0831211 do not include intermetallic anchor layers for retaining the catalytic coating.

Furthermore, claim 1 is directed to a carrier comprising a tube of corrugated construction. There is no teaching or suggestion in Ishida or EP 0831221 of carrier comprising a tube of corrugated construction that can be bent. As discussed above, the carriers disclosed in Ishida must be rigid and non-deformable, and the carriers in EP 0831221 are also rigid and not capable of being bent because the corrugated cushion member which does not contain any coating is attached to the catalytic member which contains only a catalytic coating. As discussed above, the carriers in EP 0831221 do not include an intermetallic anchor layer. While the carrier disclosed in EP 0831221 may be tubular, it is not adapted for use in a

conformable catalyst member, and it is not of corrugated construction merely because it is attached to a corrugated cushion member. Applicants respectfully submit that the tubular carriers disclosed in EP 0831221 are similar to those disclosed in Applicants' specification at page 13, lines 25-28, which teaches that the carriers comprising a tube of corrugated construction can be used in curved portions of exhaust systems together with rigid, tube-like catalyst members, which would be used in straight sections of the exhaust systems. Since neither Ishida nor EP 0831221 teaches or suggested a carrier comprising a corrugated tube, the Examiner has failed to establish a *prima facie* case of obviousness.

Accordingly, Applicants are of the opinion that EP 0831211, like Ishida, fails to teach a carrier having an intermetallic anchor layer for retaining a catalytic material when the carrier is bent. The carriers of the catalytic bearing members in EP 083221 are in the form of cylindrical sheets that are spot welded to corrugated sheet cushion member 24 so that the cushion member 24 deforms relative to the member 22 in the radial direction to accommodate different amounts of thermal expansion between the exhaust pipe 5 and the catalytic member 22. (col. 7, lines 1-10.) Such a construction, in which the corrugated cushion member is fastened to the cylindrical catalytic member would not provide a carrier for use in a conformable catalytic member, but instead one that is rigid. Since the cylindrical substrates shown in EP 0831211 are not corrugated or adapted to be used in a conformable catalyst

member as required by Applicants' claim 1, EP 0831211 fails to cure the deficiencies in Ishida, the Examiner has failed to establish a *prima facie* case of obviousness.

Claims 2-3, 5-6 and New Claims 30-33

For at least the reasons provided above with respect to claim 1, claims 2-3 5-6, and 30-33, all of which depend from claim 1, are patentable over the cited art. With respect to claim 2, EP0831221 does not teach a tube have a perforations around it periphery. Regarding claim 5, EP0831221 does not teach alternating rings separated by annular webs.

Regarding claim 31, Ishida and EP0831221 do not teach or suggest a carrier having an elongate body portion which is dimensioned and configured to be mounted within a curved or bent pipe having an open discharge end, the carrier having coated thereon an anchor layer suitable for having a catalytic coating applied thereto, the carrier having a distal end and a proximal end, the proximal end comprising a mounting member dimensioned and configured to be secured to the open discharge end of the pipe when the body portion of the carrier is disposed within the pipe.

Regarding claim 32, Ishida and EP0831221 do not teach or suggest the mounting member comprises an annular collar defining a mounting flange which is disposed radially outwardly of the proximal end of the catalyst member.

New Claims 34-36

Independent claim 34 and claims 35 and 36, which depend from claim 34 also are not taught or suggested by

Ishida and/or EP0831221. Claim 34 requires a refractory metal carrier comprising a plurality of perforated plate members having opposite faces and disposed in a face-to-face linear array to impart a cylindrical shape to the carrier and to form accordion pleats, the plate members having protrusions extending from their faces which space adjacent plate members from each other, the carrier having coated thereon an intermetallic anchor layer adapted for use in a conformable catalyst member that can be placed in a bent or curved configuration. Neither of the cited references teaches such a structure, namely a carrier with an intermetallic layer having a face-to-face linear array and forming accordion pleats. In addition, as discussed above with respect to claim 1, neither of the cited references teach a carrier that can be used in a conformable catalyst member that can be placed in a bent or curved configuration. As noted above, Ishida teaches away from such a carrier plate. For at least these reasons, claims 33-36 are patentable over the cited references.

Conclusion

Reconsideration of the above-referenced patent application in view of the foregoing amendment is respectfully requested. A petition for a one-month extension of time is enclosed. If any other fees are due, however, the USPTO is authorized to charge Deposit Account No. 50-3329.

Application No. 10/612,658

The undersigned was authorized by Richard A. Negin, Reg. No. 28,649, an attorney of record in the subject application, to prepare and file this Amendment on behalf of the Assignee. Correspondence should continue to be directed to Chief Patent Counsel, Engelhard Corporation, 101 Wood Avenue, P.O. Box 770, Iselin, NJ, 08830-0770.

Respectfully submitted,

Dated: December 21, 2005

By: 

Scott S. Servilla
Reg. No. 40,806
Telephone (732) 815-0404

Engelhard Corporation
101 Wood Avenue, P.O. Box 770
Iselin, NJ 08830-0770